REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 6-23 are pending in the present application. Claims 6, 10, and 18 are amended by the present amendment.

Claims 6-8, 10-12, 14-20, and 22-23 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kauffman et al. (U.S. Patent No. 5,209,076, hereinafter "Kauffman") in view of Jayanth et al. (U.S. Patent Application Publication No. 2002/0141877, hereinafter "Jayanth"); and Claims 9, 13, and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kauffman and Jayanth in view of Klapper et al. (U.S. Patent No. 6,448,982, hereinafter "Klapper").

The independent claims have been amended to more clearly specify the measured and the manually entered parameters related to an operating state, as disclosed in the published application in paragraph [0043] and also to specify the operating parameters as disclosed in the published application in paragraph [0045]. In addition, the independent claims have been amended to recite that "the operating parameters are calculated by the design program based on the measured parameters and the manually entered parameters related to the operating state of the reciprocating compressor," as disclosed in the published application in paragraph [0045]. No new matter has been added.

The outstanding rejections on the merits are traversed based on the claim amendments and as discussed next.

Briefly recapitulating, amended Claim 6 is directed to a method for monitoring a

reciprocating compressor that includes the steps of:

reading from sensors, associated with the reciprocating compressor, data
corresponding to measured parameters relating to an operating state of the
reciprocating compressor;
reading manually entered data corresponding to manually entered parameters
relating to the operating state of the reciprocating compressor;
reading from a first database reference parameters relating to the operating state
of the reciprocating compressor;
reading operating parameters of the reciprocating compressor that are calculated
by a design program;
performing a first comparison between the measured parameters, the manually
entered parameters, the reference parameters and the operating parameters;
performing a second comparison between the measured parameters, the manually
entered parameters and the reference parameters stored in the first database;
detecting whether an anomaly exists based on results of the first and second
comparisons; and
if an anomaly is detected in the first and second comparisons, performing a
search in a second database to find a match of previously stored data correlated with
predetermined anomalies and corresponding characteristics of the predetermined
anomalies, and sending a signal according to the match, the signal indicating
characteristics of the detected anomaly of the operating state of the reciprocating
compressor.

The claimed method performs a first comparison that involves four different

parameters and a second comparison that involves three different parameters. The four

parameters are the measured parameters, the manually entered parameters, the

reference parameters, and the operating parameters. The three different parameters is

a subset of the four different parameters. The claim also recites that the measured

parameters and the manually entered parameters are related to an operating state of

the reciprocating compressor (see also paragraph [0023] on page 1 of the published

application). The published application indicates in paragraph [0043] on page 2 specific

examples of the parameters relating to the operating state of the reciprocating

compressor and the claim now recites these parameters.

The measured parameters are those parameters that are measured by a sensor

and their value is electronically transmitted to a processing unit 4 in Figure 1 that

performs the monitoring while the manually entered parameters are those parameters

that are not electronically transmitted to the processing unit but rather manually entered

by an operator into the processing unit 4.

The operating parameters are recited to include:

one or more of a gas flow rate, a delivery pressure of each stage except the last
stage of the reciprocating compressor, a delivery temperature at each stage of the
reciprocating compressor, a power consumption of the reciprocating compressor and
forces acting on the reciprocating compressor and the operating parameters are
calculated by the design program based on the measured parameters and the manually
entered parameters related to the operating state of the reciprocating compressor.

The operating parameters are calculated by a design program as disclosed in

paragraph [0045] on page 2 of the published application.

Independent Claims 10 and 18 have been amended similar to Claim 6.

Turning to the applied art, Kauffman discloses a microprocessor based device

which monitors the operation of a compressor in a refrigeration system and

automatically shuts the compressor down if a monitored condition is abnormal. (see

Abstract).

Kauffman discloses that various parameters of the compressor (see column 3,

line 50 to column 4, line 5) are monitored and compared to test values (see column 5,

lines 35-54). If the monitored parameters are lower or higher than the test values for a

certain time out period, the device of <u>Kauffman</u> concludes that there is an anomaly and shuts down the compressor.

<u>Kauffman does not teach or suggest manually entered parameters</u>

The outstanding Office Action considers in the paragraph bridging pages 3 and 4 that a "safety range" disclosed by <u>Kauffman</u> corresponds to the claimed manually entered parameters. However, the safety range of <u>Kauffman</u> is not a manually entered parameter according to amended Claims 6, 10, and 18.

<u>Kauffman does not teach or suggest a compressor having multiple stages</u>

The amended independent claims recite among the measured and manually entered parameters pressures and temperatures at various stages of the reciprocating compressor. The compressor of <u>Kauffman</u> does not appear to have multiple stages. At least for this reason, monitoring the compressor of <u>Kauffman</u> and detecting its symptoms is different from detecting symptoms of a multiple stage compressor as claimed.

<u>Kauffman does not compare measured parameters with reference parameters</u>

Claim 6 recites that a second comparison compares the measured parameters, the manually entered parameters and the reference parameters. As discussed above, the measured parameters and the manually entered parameters have been defined now

in the claims and these parameters are compared to reference parameters to identify

various symptoms of the reciprocating compressor.

The outstanding Office Action asserts in the paragraph bridging pages 3 and 4

that a "time out period" in Kauffman corresponds to the claimed reference parameters.

However, based on this interpretation, Kauffman does not compare measured

parameters with time out periods, as asserted by the outstanding Office Action. Rather,

Kauffman compares the measured parameters with some test parameters for a time out

period.

Thus, Kauffman does not teach or suggest comparing measured parameters with

reference parameters as interpreted by the outstanding Office Action.

Kauffman does not teach or suggest operating parameters calculated by a design

program

The amended independent claims recite that the operating parameters are

calculated by a design program based on the measured parameters and the manually

entered parameters.

The outstanding Office Action considers on page 5, last 8 lines, that the device of

Kauffman by being able to be attached to different refrigeration systems is capable of

obtaining "representative samples of the operating characteristics." While the device of

Kauffman may be able to obtain "operating characteristics," these characteristics are not

calculated by a design program based on the claimed measured and manually entered

parameters. These operating characteristics are simply measured parameters.

Thus, Kauffman does not teach or suggest the claimed operating parameters in addition to the measured parameters.

The reason for combining Kauffman and Jayanth is inaccurate

The outstanding Office Action considers that Jayanth discloses a system for monitoring parameters of a compressor and informing an operator of the compressor whether the compressor is faulty. Based on this disclosure, the outstanding Office Action considers that one skilled in the art desiring *a longer-lasting compressor* would combine the teachings of Jayanth and Kauffman.

However, the reason provided by the outstanding Office Action is inaccurate as discussed next. Kauffman discloses a compressor and associated logic that shuts down the compressor when abnormal conditions are present. Jayanth discloses a system of blinking lights that correspond to various malfunctions of the compressor and requires the intervention of a technician.

If one skilled in the art would combine the teachings of these two references as noted by the outstanding Office Action, the occurrence of an abnormal condition in the compressor of Kauffman would not result in shutting down the compressor, as this mechanism has been replaced with the blinking mechanism of Jayanth, and thus, for a severe abnormality, the compressor will fail while the blinking lights are blinking and waiting for the technician to arrive. Thus, the reason of the *long-lasting compressor* is not achieved by the combination proposed by the outstanding Office Action and for this reason, the proposed combination of Kauffman and Jayanth is improper.

Accordingly, in light of the above discussion and in view of the enclosed amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,

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